Indiana Department of Education

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March 29, 2004

To: Technology Education Teachers
From: Mike Fitzgerald
Subject: Technology Education Actions/Contexts Model, Page 1 of 2

TECHNOLOGY EDUCATION
(511 IAC 6-7-6, 511 IAC 6.1-5.1-9 AND 511 IAC 6.1-5-3.5)

INTRODUCTION

Technology Education is a body of knowledge and an area of study focusing on human endeavors in creating and using tools, techniques, resources, and systems to manage the man-made and natural environments. Students with technological knowledge understand how the human-built world is designed and created and how people can use it to extend their potential.
The Technology Education curriculum is designed to help students understand and to participate in the technological society surrounding them.

Curriculum and classroom activities designed for Technology Education provide the knowledge and problem solving skills needed by people in their three major areas of living. A person who has completed a Technology Education program should be able to participate as an **active citizen** through understanding and expressing positions on technological issues such as nuclear power generation, solid waste disposal, and natural resource management. In addition, a person should be able to make wise **consumer choices** including selecting appropriate technology, using it correctly, and disposing of it properly after it has served its purpose. Finally, Technology Education helps people make informed **career choices** by allowing students to participate in a wide array of technological activities which all have career ramifications. Technology Education in Indiana is described as:

An action-based program for all students to learn how to develop, produce, use, and assess the impacts of products and services that extend the human potential to improve and control the natural and human-made environment.

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The fundamental objectives for this curriculum area are designed so that each student who participates in the Technology Education program will acquire an understanding of technology as a system in the global context by learning how to:

- Develop and produce technological products, structures, or services to meet human demands and wants.
- Use tools, machines, materials, and energy to produce products, structures, and services.
- Select appropriate technology to solve problems and meet opportunities.
- Appropriately use technology to extend human potential to improve and control our environment.
- Assess the impact of technology on individuals, society, and the environment.
- Use appropriate personal and interpersonal skills to participate in a technological society.

To reach these goals, the program is based on a set of actions that are universal for all technologies. The curriculum structure is comprised of four major sequential stages (introduction, systems, processes, and application) and deals with two key aspects:

- The actions used in developing, producing, using, and assessing technology.
- The contexts where technology is developed and used.

The following two-dimensional matrix illustrates this approach.

Technological Actions/Contexts Model

TECHNOLOGICAL ACTIONS	Communication	Construction	Manufacturing	Transportation
Developing products and systems				
Producing products and services				
Using products and services				
Assessing products and systems				

TECHNOLOGICAL CONTEXTS

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From: Mike Fitzgerald
Subject: Technology Education, Fundamentals of Engineering

TECHNOLOGY EDUCATION
(511 IAC 6-7-6, 511 IAC 6.1-5.1-9 AND 511 IAC 6.1-5-3.5)

FUNDAMENTALS OF ENGINEERING

DOE #4802

Engineering is the process of applying scientific and mathematical principles in the design, production, and operation of products, structures, and systems. An engineer is a highly educated and trained problem solver who engages in the functions of research, development, planning, design, production, and project management. Engineers often work as part of a team to plan, design, and supervise a product from concept to completion. This is a hands-on course designed to provide students interested in careers in engineering opportunities to explore various specialized fields such as civil, mechanical, and materials engineering. The topics of ethics and the impacts of engineering decisions should also be addressed. Classrooms and activities should be organized to allow students to work in teams and use visual and print communication processes when presenting ideas and information.

- Suggested Grade Levels: 11-12
- Recommended Prerequisite: Technology
- A one credit/one semester course.
- A Core 40 directed elective as part of a technical career area.
- Competencies defined.
- This course is included as a component of the Engineering, Science, and Technologies career cluster and may also be included as a component of Manufacturing and Processing; Mechanical Repair and Precision Crafts; and Building and Construction career clusters.